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Re-examining the Canadian Surface Combatant and F-35A Procurements in the Age of Majority Power Conflict

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**RE-EXAMINING THE CANADIAN SURFACE COMBATANT AND
F-35A PROCUREMENTS IN THE AGE OF MAJOR POWER CONFLICT**

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RE-EXAMINING THE CANADIAN SURFACE COMBATANT AND F-35A PROCUREMENTS IN THE AGE OF MAJOR POWER CONFLICT

AIM

1. The aim of this paper is to re-examine the major procurement programs of the National Shipbuilding Strategy (NSS) and the Future Fighter Capability Project (FFCP) through the lens of major power conflict with China as well as the rapid technological developments that are driving current and future joint operations. In doing so, the goal is to determine if these procurements in their current form optimize joint capabilities, maximize the CAF's contribution to allied efforts to deter and if necessary to fight in future major conflicts, and achieve the objectives within Canada's Defence Policy, Strong, Secure, and Engaged (SSE). Furthermore, having the most robust and relevant capabilities which are key contributors to allied and coalition efforts would increase Canada's standing in the world and are likely to encourage more young Canadians to join the Canadian Armed Forces (CAF).

INTRODUCTION

2. The end of the cold war meant a reduction in capability for the CAF resulting from the end of major power competition in a world where the United States was the sole superpower. It was a period of great difficulty in advancing large military procurements. The start of the 21st century ushered in a focus on counterterrorism, conflict with the states that supported them, and counterinsurgency operations against non-state actors. Thus, for the past twenty years, military thinking has been very land-oriented, and procurements favored urban warfare against insurgents and air forces that could support the land force in conditions of air supremacy against limited air threats.¹ It is against this inertia that the major modernization initiatives of the Royal Canadian Navy (RCN) and Royal Canadian Air Force (RCAF) struggled for many years to be supported.

3. It is this historical background, plus the fact that the major capital procurements of the different CAF components are occurring in isolation of each other, and the rapidly changing threat paradigm of major state-on-state conflict against peer competitors that frame the discussion in the service paper. I will begin by discussing the core objectives of relevant strategic policy documentation, then shift to how our key allies intend to counter emerging major power competition with China. Finally, I will suggest possible modifications to existing capital procurement projects that would compliment both Canadian policy and allied efforts. The resulting recommendation cannot add unrealistic expenditures in money, personnel, or other finite resources.

¹ Office of the Parliamentary Budget Officer, *Fiscal Impact of the Canadian Mission on Afghanistan*. Ottawa, (October 9, 2008):14-15 http://www.pbo-dpb.gc.ca/web/default/files/files/files/Publications/Afghanistan_Fiscal_Impact_FINAL_E_WEB.pdf

DISCUSSION

4. Canada's Defence Policy: Strong, Secure, Engaged (SSE) acknowledges the important role that credible deterrence plays in major state power competition with China and Russia. It also emphasises the fact that the balance of power is changing, and technology is evolving rapidly.² Canada's Indo-Pacific Strategy uses aggressive language with regards to the threat China poses to the rules-based international order. It describes China as an "increasingly disruptive global power ... enabled by the same international rules and norms that it now increasingly disregards..."³ Militarily, it asserts that Canada "is stepping up as a reliable partner in the region to promote security and stability... will increase our military engagement and intelligence capacity... [and] will deploy additional military assets."⁴ Together, these documents acknowledge that the largest threat to global peace and security is no longer from terrorist groups and the countries that support them. Instead, we have returned to a bi-polar world of major power competition, in which peer adversaries wish to overturn the established rules-based international order. The CAF must pivot quickly to face this threat, and government policy indicates the nation's commitment to this endeavour. To contribute a credible deterrence to the threat, the CAF must develop robust defensive and offensive capabilities which integrate seamlessly with our allies and prevent our adversaries from escalating conflicts in highly contested operational environments.

5. The newest CAF strategic documentation acknowledges this shifting threat and the capabilities that must be pursued to counter it. The new RCAF strategic document, Agile-Integrated-Inclusive, states that the RCAF must adapt "forces and training for... situations in contested operating environments... [and] must take a pan-domain approach to the defence of Canada... integrating more effectively within the CAF... and enhance interoperability with NATO allies and broader coalition partnerships."⁵ In *Leadmark 2050*, the RCN describes the importance of sea control in future joint campaigns and the new capabilities to achieve it, including: "gain access to the theatre of operation, project maritime power ashore... contribute to land operations through the provision of command and control afloat, Intelligence, surveillance, and reconnaissance [ISR], joint fires, and force protection."⁶ The Canadian Army (CA) underscores its own needs moving forward. In *Advancing with Purpose: The Canadian Army Modernization Strategy*, It acknowledges that the Army is "currently optimized to counter single-domain threats... adversaries are using this limitation to their advantage as they mount a

² Dept. of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy*. (Ottawa, National Defence, 2017) 49-50 <https://www.canada.ca/content/dam/dnd-mdn/documents/reports/2018/strong-secure-engaged/canada-defence-policy-report.pdf>

³ Global Affairs Canada, *Canada's Indo-Pacific Strategy*. (Ottawa, Global Affairs, 2022) 7 <https://www.international.gc.ca/transparency-transparence/assets/pdfs/indo-pacific-indo-pacifique/indo-pacific-indo-pacifique-en.pdf>

⁴ *Ibid.*, 14

⁵ Dept. of National Defence, *Agile, Integrated, Inclusive: Royal Canadian Air Force Strategy*. (Ottawa, National Defence, 2023) 8-9 <https://www.canada.ca/content/dam/rcaf-arc/documents/reports-publications/royal-canadian-air-force-strategy.pdf>

⁶ Dept. of National Defence, *Leadmark 2050: Canada in a New Maritime World*. (Ottawa, National Defence, 2016) 26-27 http://navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/rcn_leadmark-2050.pdf

concerted and sustained challenge to the international rules-based order.”⁷ It elaborates that the Army “has realized that meeting this challenge will demand a broader set of military capabilities, integrated across domains.”⁸ In *Close Engagement*, the Canadian land operations capstone operating concept, it states that for future success in overseas operations, the Army must “develop the capabilities needed to project land forces [including] specific force packages ... that can be rapidly transported by sealift.”⁹ These statements speak to the need for all components of the CAF to improve operational reach, a key component of military power, and interoperability across domains and with allies. Conflict in the Indo-Pacific region is by geographic necessity, a maritime conflict, far from the assurance of secure air and land bases of operation as utilized by NATO in Europe. Indeed, it is unclear how the Canadian Army could be effective against China in its current state, given that the approaches to Chinese territory will be heavily contested, and contracted sea and airlift is an unlikely option.

6. The Canadian Surface Combatant (CSC) and F-35A fighter jets that will be procured under the NSS and FFCP respectively, were proposed before wide acknowledgment of the changing geopolitical situation and substantial new threat posed by China. While CSC will be a highly capable escort for a carrier strike group at sea, it is a capability to be attached as a defensive option to allied operations, possessing no legitimate offensive capability which could add a credible Canadian deterrence option. It also provides few if any new joint capabilities to that which the RCN already conducts. It has been procured to take over the well-established traditional naval roles carried out by the Halifax frigate and Iroquois Class Destroyer. Similarly, the F-35A, while being a remarkable weapon system and ISR platform, will be used primarily in the traditional NORAD and NATO roles, operating from land bases in North America and Europe, like its predecessor.

7. As stated above, the main questions are, do these new systems, as the only frontline warship and only multi-role fighter, optimize Canada’s contribution to allied efforts to deter Chinese aggression? Do the capabilities they provide offer the Canadian Government a role commensurate with its ambitions on the world stage? To answer these questions, one needs to examine what the United States and our other key allies are doing to face the threat of China. The United States Navy (USN) and Marine Corps (USMC) are preparing for major-power conflict with the doctrine of Distributed Maritime Operations (DMO). DMO is designed for the conduct of enduring sea control and power projection missions against China and Russia.¹⁰ In DMO, the combined USN/USMC fleet distributes “forces geographically and in all domains [which] enables them to threaten an adversary from multiple attack axes. Smaller, lethal, and less costly platforms- including manned, unmanned...- further complicate threat targeting, generate

⁷ Dept. of National Defence, *Advancing with Purpose: The Canadian Army Modernization Strategy, 4th Edition* (Ottawa, National Defence, 2021) 23

⁸ Ibid.

⁹ Dept. of National Defence, *Close Engagement: Land Power in an Age of Uncertainty*. (Ottawa, National Defence, 2019) 34-35

¹⁰ Edward Lundquist, “DMO is Navy’s Operational Approach to Winning the High-End Fight at sea” *Seapower*, 2 February 2021, 1. <https://seapowermagazine.org/dmo-is-navys-operational-approach-to-winning-the-high-end-fight-at-sea/>

confusion, and impose dilemmas for our adversaries.”¹¹ DMO will be enabled from the air by the F-35. Vice Admiral DeWolfe H. Miller, commander of US Naval Air Forces described the role of F-35 pilots as “to think like mission commanders...and be able to influence the battlespace both kinetically and non-kinetically... by networking to a distributed force.”¹² Thus the F-35 is a key node enabling the entire distributed Maritime force. For the Navy, the supercarrier-borne F-35C variant is employed. But the USMC has applied the same concept around the F-35B from smaller amphibious assault ships. From the USMC point of view “The F-35 is not just another combat asset, but at the heart of empowering an expeditionary kill web-enabled and enabling force... the F-35 does not operate as a single aircraft. It hunts as a network-enabled cooperative fighting a fused picture.”¹³

8. From both USN and USMC perspectives, the F-35 is a true force multiplier that is the cornerstone of the DMO doctrine they seek to employ in the Indo-Pacific theatre. The intent to operate in a distributed fleet includes smaller carriers and amphibious assault ships in which “the coalition and joint partners are working seamlessly”¹⁴ with their own organic F-35-carrying ships in networked kill webs. Under this construct, the more nodes available, the better the kill web. This presents an opportunity for Canada to contribute to DMO in a much more significant way than just with a frigate protecting higher value units or with RCAF F-35As based ashore. As of today, countries that are employing or will employ the F-35B at sea include Britain, Australia (through cross-decking with USMC aircraft), Japan, Korea, Italy, Spain, and Turkey. For Japan and Korea, it is noteworthy that although they intend to operate the F-35A from home bases, they decided to amend their procurement plans to include the F-35B and operate it at sea. Japan’s announcement of the F-35B purchase drew warnings from China.¹⁵ This is noteworthy because as countries whose primary focus is defending their home territories from nearby adversaries, they have still concluded that a seaborne F-35 capability is necessary.

9. The Canadian Army can also play a major role in DMO. Through an amphibious assault ship capability, the CA would be able to greatly enhance its interoperability, joint capability, and global reach. Relying on contracted sea and air lift is far from optimal, and it is difficult to imagine a use for a Canadian land force offloaded to a port in Asia, other than for land-based defence of that nation. The USMC sees a major conflict in Asia as a modernized version of the Island-hopping campaign of the Pacific War. They have completely realigned their force, including the divestment of the main battle tank, a long-time mainstay of the Marines, to focus

¹¹ US Navy Chief of Naval Operations, *Navigation Plan 2022* (Washington, DC: US Government Printing Office, 2022), 10 https://media.defense.gov/2022/Jul/26/2003042389/-1/-1/1/NAVIGATION%20PLAN%202022_SIGNED.PDF

¹² Robbin F. Laird and Edward Timperlake, *A Maritime Kill Web Force in the Making: Deterrence and Warfighting in the 21st Century*, (New Jersey: Laird & Timperlake, 2022) 51

¹³ *Ibid.*, 133-134

¹⁴ *Ibid.*, 135

¹⁵ *Figherjetsworld.com*, “China Warns Tokyo Against Modifying Ships to Carry F-35B”, 1 December 2018 <https://fighterjetsworld.com/air/china-warns-tokyo-against-modifying-ships-to-carry-f-35s/9568/>

on future technologies for their amphibious fleet.¹⁶ By participating, the CA would reap the same technological and joint capability benefits.

10. An example of a suitably sized amphibious assault ship that could meet Canada's needs is the Spanish Juan Carlos I Class. This class of ship is equipped primarily as a Short Take-off Vertical Landing (STOVL) carrier with up to ten F-35B but can be configured to carry 913 soldiers and up to 46 leopard 2E tanks.¹⁷ It is the very definition of multi-role, with diverse naval aviation, joint command, amphibious assault, and HADR roles. A similar Canadian ship would possess the same force-package options. The F-35B, when not deployed at sea, would provide additional value to remote arctic operations, where it could be flown from far shorter runways than the F-35A.

11. Another example is a modified variant of the Juan Carlos 1, Australia's Canberra Class. The Canberra was designed specifically for use as an amphibious assault ship with capacity for 110 vehicles and over one thousand troops along with 16 medium helicopters.¹⁸ It is a capable option for fixed-wing STOVL cross-deck operations with allied F-35Bs. In 2017 Australia qualified a fully formed Marine Expeditionary Unit (MEU) through joint exercises with the USMC.¹⁹ They are now fully interoperable with the US Marines. This is only possible through their acquisition of the Canberra Class.

12. Australia's commitment to interoperability with US forces adds tremendous value to allied operations in the Indo-Pacific. The close partnership between Australia and the United States, along with Great Britain who also operate the F-35B and maintain a robust amphibious assault capability, forms the basis of the AUKUS trilateral security partnership. Canadian media aggressively reported that Canada was left out of this agreement.²⁰ One of two lines of effort in AUKUS is: "advanced capabilities – AUKUS will develop and provide joint advanced military capabilities to promote security and stability in the Indo-Pacific region... [including] undersea robotics autonomous systems, quantum technologies, AI, and advanced cyber."²¹ Formally Joining our closest allies in this partnership would be exactly in line with Canada's Indo-Pacific Strategy and CAF strategic goals.

¹⁶ USMC, Force Design 2030: Divesting to meet the Future Threat, 1 December 2021. 7 <https://www.hqmc.marines.mil/Portals/142/Docs/CMC38%20Force%20Design%202030%20Report%20Phase%20I%20and%20II.pdf?ver=2020-03-26-121328-460>

¹⁷ Janes Fighting Ships 2018-2019 (Surrey, UK: IHS Markit, 2018) 788

¹⁸ Ibid., 35

¹⁹ USMC, Talisman Saber 17 a Success, 31st MEU Marines Re-Embark aboard BHR ESG, last modified 25 July 2017. <https://www.marines.mil/News/News-Display/Article/1256690/talisman-saber-17-a-success-31st-meu-marines-re-embark-aboard-bhr-esg/>

²⁰ Lee Berthiaume, *Senior Military leader concerned by Canada's absence from American-British-Australian security pact*, 15 January 2023, <https://www.cbc.ca/news/politics/military-officer-aucus-deal-1.6714845>

²¹ Australian Government, *Fact Sheet: Implementation of the Australia – United Kingdom – United States Partnership (AUKUS)*, 6 April 2022. <https://www.defence.gov.au/about/taskforces/nuclear-powered-submarine-task-force/australian-uk-and-us-partnership>

CONCLUSION

13. Given Canada's track record for long procurement cycles, delays, and cancellations, it is tempting to allow the procurement of 15 CSCs for the RCN and 88 F-35A for the RCAF to proceed to conclusion without further scrutiny. But the acknowledgment by our own government that the global security climate has fundamentally changed prevents us from having this luxury.

14. Maintaining a credible deterrent to renewed aggression demands a closer look. By the government's own defence policy and tough stance with respect to the Indo-Pacific, it is a legitimate concern that current procurements which were conceived decades ago may not be optimized to meet our needs. The rapid advance of new technologies like cyber and autonomous systems, further the case for added scrutiny.

15. In response to the threat posed by China, the United States Navy and Marine Corps have pivoted their doctrine to Distributed Maritime Operations. It is a doctrine designed around the F-35 and multiple sea-based platforms fighting as nodes in a kill web at sea, in the air, and on land. It will incorporate advanced autonomous, C4ISR, and AI technologies as they come online. They are seeking international partners to add effectiveness to this pan-domain way of warfighting. Many of our closest allies have adopted or are adopting the principles of DMO for their shared defence and are making the corresponding procurements. Canada could become a major player in world affairs at the forefront of joint military operations and advanced technology by following suit.

16. Given renewed government interest in defence brought about by Russia's invasion of Ukraine and China's aggressive posturing in the Indo-Pacific, there is an opportunity for the CAF to be more aggressive when demanding the procurement of capabilities that are needed to defend Canadians, and demand they be acquired in a timely manner.

RECOMMENDATION

17. Acknowledging that the CAF is in a state of reconstitution to rebuild our fighting strength, and that new capital projects are expensive, it is conceded that it is not feasible to add significant bulk to the procurements already approved. Therefore, I recommend the CAF aggressively explore the following modification to approved procurements as follows:

a) Acquisition of 2 Amphibious Assault Ship/STOVL Aircraft Carrier hulls of approximately 25,000 tons displacement, similar in design to the Juan Carlos I/Canberra Class, to be made operational no later than 2030. Reduction in planned CSC hulls from 15 to 10.

b) Acquisition of 24 F-35B aircraft, to be made operational in line with RCAF requirements and ready for initial seaborne deployments no later than 2030. Reduction in planned F-35A airframes from 88 to 64.

18. I further recommend the Canadian Army refocuses a suitable portion of its force to expeditionary amphibious operations, making necessary procurements to function with the new

amphibious assault ship, as well as training an amphibious force to USMC and Australian Army standards.

BIBLIOGRAPHY

- Australia. Government of Australia. *Fact Sheet: Implementation of the Australia – United Kingdom – United States Partnership (AUKUS)*, Canberra: Department of Defence, 2022. <https://www.defence.gov.au/about/taskforces/nuclear-powered-submarine-task-force/australian-uk-and-us-partnership>
- Berthiaume, Lee. “Senior Military leader concerned by Canada’s absence from American-British-Australian security pact.” *Canadian Broadcasting Corporation*, 15 January 2023, <https://www.cbc.ca/news/politics/military-officer-aukus-deal-1.6714845>
- Canada. Dept. of National Defence. *Advancing with Purpose: The Canadian Army Modernization Strategy, 4th Edition*. Ottawa: National Defence, 2021. https://www.canada.ca/content/dam/army-armee/migration/assets/army_internet/docs/en/national/2021-01-canadian-army-modernization-en.pdf
- Canada. Dept. of National Defence. *Agile, Integrated, Inclusive: Royal Canadian Air Force Strategy*. Ottawa: National Defence, 2023. <https://www.canada.ca/content/dam/rcaf-arc/documents/reports-publications/royal-canadian-air-force-strategy.pdf>
- Canada. Dept. of National Defence. *Close Engagement: Land Power in an Age of Uncertainty*. Ottawa: National Defence, 2019. https://www.canada.ca/content/dam/dnd-mdn/army/lineofsight/files/articlefiles/en/Close_Engagement.pdf
- Canada. Dept. of National Defence. *Leadmark 2050: Canada in a New Maritime World*. Ottawa: National Defence, 2016. http://navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/rcn_leadmark-2050.pdf
- Canada. Dept. of National Defence. *Strong, Secure, Engaged: Canada's Defence Policy*. Ottawa: National Defence, 2017. <https://www.canada.ca/content/dam/dnd-mdn/documents/reports/2018/strong-secure-engaged/canada-defence-policy-report.pdf>
- Canada. Global Affairs Canada, *Canada’s Indo-Pacific Strategy*. Ottawa, Global Affairs, 1 January 2023. https://www.international.gc.ca/transparency-transparence/indo-pacific-indo-pacifique/index.aspx?lang=eng#a2_1_1
- Canada, Office of the Parliamentary Budget Officer, *Fiscal Impact of the Canadian Mission on Afghanistan*, Ottawa: 9 October 2008. http://www.pbo-dpb.gc.ca/web/default/files/files/Publications/Afghanistan_Fiscal_Impact_FINAL_E_WEB.pdf
- Fighterjetsworld.com, “China Warns Tokyo Against Modifying Ships to Carry F-35B”, 1 December 2018. <https://fighterjetsworld.com/air/china-warns-tokyo-against-modifying-ships-to-carry-f-35s/9568/>
- Janes Fighting Ships, 2018-2019. Surrey, UK: IHS Markit, 2018.

Laird, Robin F. and Timberlake, Edward, *A Maritime Kill Web Force in the Making: Deterrence and Warfighting in the 21st Century*. New Jersey: Laird & Timperlake, 2022.

Lundquist, Edward. “DMO is Navy’s Operational Approach to Winning the High-End Fight at sea” *Seapower*, 2 February 2021. <https://seapowermagazine.org/dmo-is-navys-operational-approach-to-winning-the-high-end-fight-at-sea/>

United States. Department of the Navy, United States Marine Corps, *Force Design 2030: Divesting to meet the Future Threat*. Washington, DC: US Government Printing Office, 2020. 1 December 2021.
<https://www.hqmc.marines.mil/Portals/142/Docs/CMC38%20Force%20Design%202030%20Report%20Phase%20I%20and%20II.pdf?ver=2020-03-26-121328-460>

United States. US Navy Chief of Naval Operations, *Navigation Plan 2022*. Washington, DC: US Government Printing Office, 2022. https://media.defense.gov/2022/Jul/26/2003042389/-1/-1/1/NAVIGATION%20PLAN%202022_SIGNED.PDF

United States Marine Corps. “Talisman Saber 17 a Success, 31st MEU Marines Re-Embark aboard BHR ESG.” Last modified 25 July 2017. <https://www.marines.mil/News/News-Display/Article/1256690/talisman-saber-17-a-success-31st-meu-marines-re-embark-aboard-bhr-esg/>